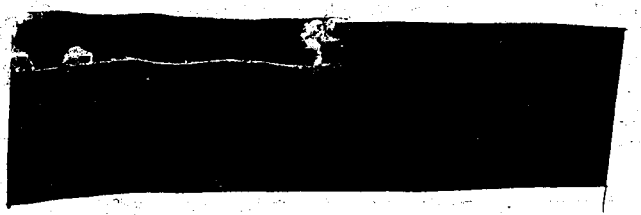
National
Foreign
Assessment
Center

Soviet Naval Mine Counter-Countermeasures

An Intelligence Assessment

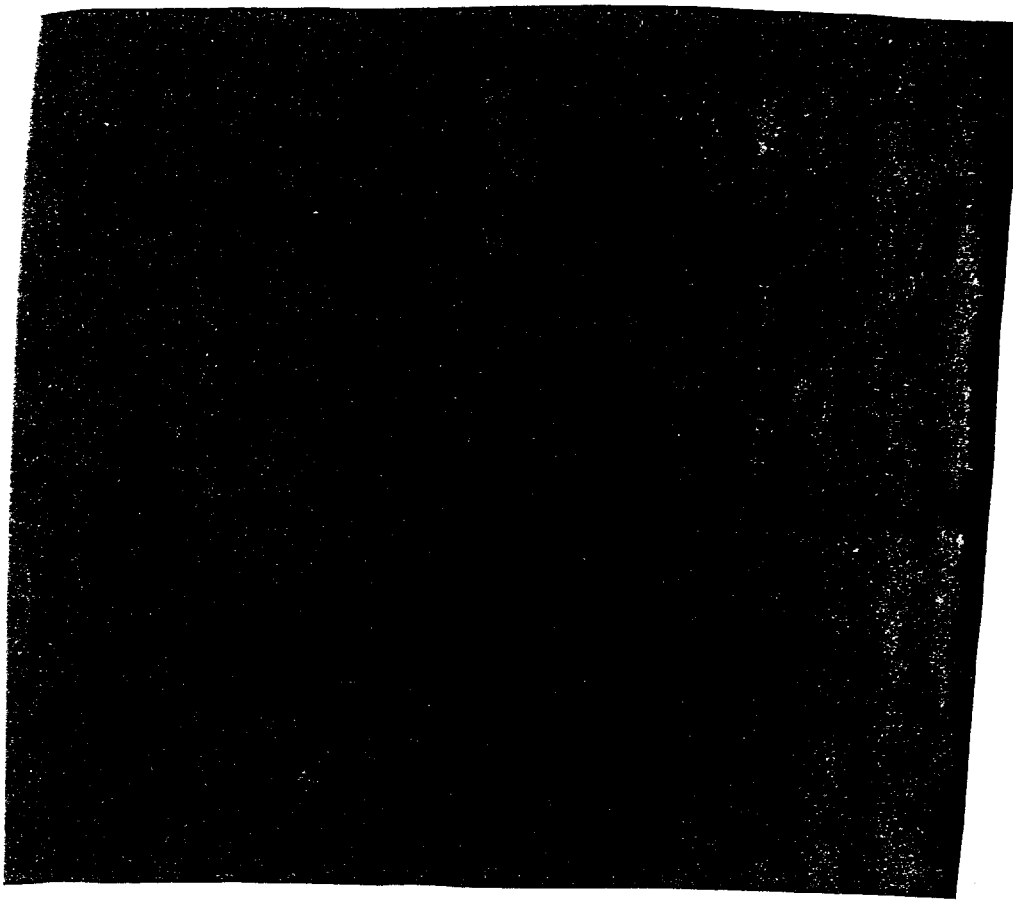
Information available as of 1 May 1980 has been used in the preparation of this report.



This paper was coordinated with the Office of Strategic Research and has been reviewed by the National Intelligence Officer for USSR and Eastern Europe.

Soviet Naval Mine Counter-Countermeasures [redacted]

Overview



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Introduction

Mines traditionally have played an important part in naval warfare, especially in the case of the Soviet Union, which has a large coastline to protect. Naval mines are used either defensively or offensively to deny hostile surface ships or submarines access to selected waters and harbors. The mines present a protracted and continuous effect on opposing forces and also create a psychological effect, which is important even if the mines themselves are not particularly effective. Sweeping devices and techniques, known collectively as mine countermeasures (MCM), clear a path through a minefield. Mine counter-countermeasures (MCCMs) are employed to protect the mine from being neutralized by such sweeping devices and techniques. [redacted]

Characteristics of Naval Mines

All naval mines can be grouped into three categories—bottom, moored, and drifting—that describe the placement of mines in water. Mines also are categorized by exploder system, by launch platform, and by their primary role. (Table 1 gives the characteristics of moored and bottom mines.) [redacted]

[redacted]

Bottom mines lie on the ocean floor or become buried if the bottom or current permits. Detonation occurs once the mine has detected and identified a valid target.

[redacted]

Table 1

Characteristics of Naval Mines

Type	Bottom	Moored
Basic Shape	Cylindrical	Elliptical
Launch Platform	Surface ship; aircraft; submarine	Surface ship; aircraft; submarine
Exploder System	Influence	Influence; contact
Primary Role	Antiship	Antisubmarine; antiship

[redacted]

Moored mines have buoyant cases that are moored by a cable attached to an anchor on the ocean bottom. The maximum depth of deployment usually depends on the maximum hydrostatic pressure that the mine can withstand or the weight of the cable that the buoyancy of the mine can sustain. [redacted]

[redacted]

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Exemptions: (b)(1) (b)(3)

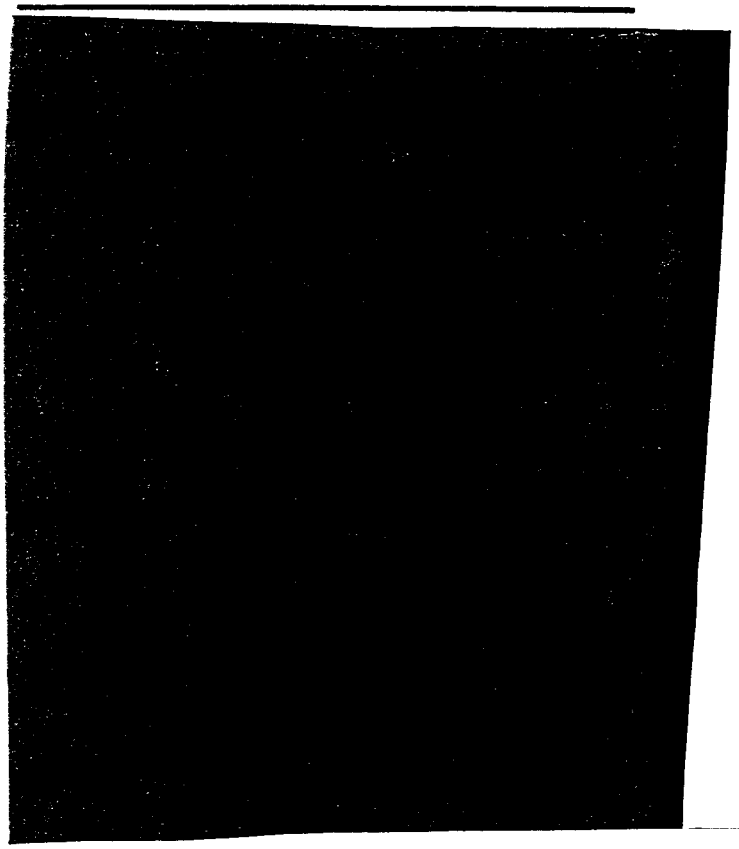
Mine Countermeasures

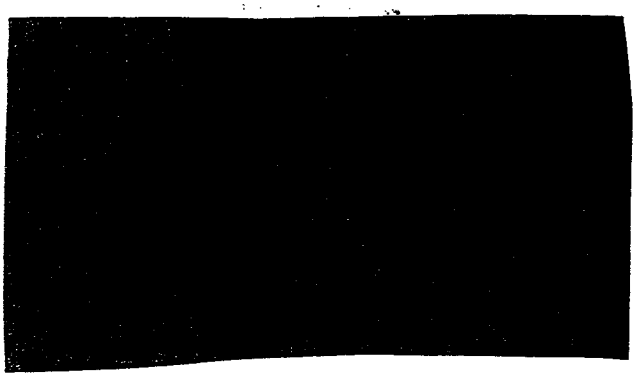
Mine countermeasures include sweeping a minefield and hunting, usually on an individual mine basis. (Soviet mine countermeasures are shown in table 3.) Neutralization of the mine is the goal in either case and is accomplished by removing, avoiding, or destroying the mine. Removal is dangerous because the mine usually is sensitive to motion and changes in hydrostatic pressure. Avoidance requires high-resolution sonars and may not be geographically possible. Destruction involves cutting the cable of a moored mine or causing the mine to self-destruct without harming the sweeping forces.

In mechanical sweeping procedures, mechanical cutters (fixed, sharp, serrated, V-shaped blades) and explosive cutters (explosively fired chisels) are towed by a surface ship or helicopter. A set of floats, depressors, and diverters is used to keep the sweep wire away from the sweeper and at the correct depth. The mine's mooring cable is channeled into the cutters and severed. Because the mine is buoyant, it rises to the surface where it can be destroyed safely. The mine also can be destroyed by the use of explosives to cause sympathetic detonation of the mine explosive, to destroy the minecase, or to disable the firing mechanism.

Another minesweeping procedure results in the mine destroying itself. The mine will self-destruct if the firing mechanism is deceived into thinking a valid target is present. This deceit is accomplished by towing mechanical or electronic devices that simulate the signature of a ship or submarine. Self-destruction also is accomplished by using "guinea pig" ships to transit the minefield.

may lead to impassability of the waters caused by the wreckage.





Mine Counter-Countermeasures (MCCM)

MCCMs can be designed into the minecase, incorporated into the mooring cable, or considered as an influence exploder system.

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